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EXAMINER

VASISTH, VISHAL V

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicants filed amendments to the claims in their response dated 5/26/2009. Applicants amended independent claims 1 and 2. For the reasons discussed below applicants' amendments do not overcome the 35 USC 103 rejections over Shimomura in view of Kawahara and Osumi in view of Schnur. Also of note, examiner withdraws objection to claim 2 based on the claims as filed in the application dated 9/1/2006.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimomura et al, US Patent No. 6,231,782 (hereinafter referred to as Shimomura) in

view of Kawahara et al., US Patent No. 6,667,285 (hereinafter referred to as Kawahara).

Shimomura discloses a refrigerator oil composition comprising, a hydrocarbon oil, an alicyclic polycarboxylic acid ester compound as a base oil component, a sulfur compound such as a phosphorothionate (as recited in claim 1) (Col. 12/L. 7-20), a phosphorus (as recited in claim 1) (Col. 2/L. 32-34), an epoxy compound such as a alkylglycidyl ester epoxy compound (as recited in claim 1) (see Abstract and Col. 10/L. 28) and a hydrofluorocarbon refrigerant (as recited in claim 1) (Col. 2/L. 5-7 and Col. 13/L. 56-63). Also, the claim as written merely recites an intended use and case law holds that a recitation of the intended use of the claimed invention must result in a compositional difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art composition is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

As discussed above Shimomura discloses an ester base oil component (Col. 2/L. 14-24 and Col. 5/L. 36) but does not explicitly disclose a polyol ester as a base oil.

Kawahara discloses a lubricating oil composition for refrigerators comprising a mixture of at least one aliphatic saturated branched-chain carboxylic monoalkyl ester and fatty acid polyol esters (polyol ester as a base oil as recited in claim 1) (Col. 3/L. 30-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the refrigerant composition of Shimomura with the base oil mixture

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of Kawahara in order to enhance the hydrolytic stability and decrease the viscosity of the composition (Col. 3/L. 23-25 of Kawahara).

***Claim Rejections - 35 USC § 103***

5. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osumi et al., US Patent No. 2002/0123436 (hereinafter referred to as Osumi) in view of Schnur et al., US Patent No. 5,820,777 (hereinafter referred to as Schnur).

Osumi discloses a refrigerating machine oil which can be used for refrigerating machines such as packaged air conditioning systems (as recited in claim 2) (Para. [0084]) comprising, a polyol ester as a base oil (as recited in claim 1) (Para. [0010]), a phosphorus additive (as recited in claims 1-2) (Para. [0052]-[0053]) an epoxy compound (as recited in claim 1-2) (Para. [0059]-[0060]) and refrigerants such as carbon dioxide or a mixture of carbon dioxide and hydrofluorocarbons (as recited in claims 1-2) (Para. [0078]-[0079]).

Osumi further discloses that the base oil for the refrigerant machine composition can be a mixture of esters made from at least two kinds of esters having different structures. Amongst the structures preferred are diesters of neopentyl glycol and a fatty acid and tetraesters of pentaerythritol and a fatty acid (as recited in claim 2) (Para. [0024] and [0027]). Also, the claims as written merely recites an intended use and case law holds that a recitation of the intended use of the claimed invention must result in a compositional difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art

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composition is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Osumi discloses sulfur-containing antiwear agents but does not explicitly disclose the use of phosphorothionates.

Schnur discloses blended polyol ester lubricants for refrigerants comprising polyol ester basestock and effective amounts of additives which include phosphorothionates. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Osumi with the additive of Schnur in order to enhance the antiwear and extreme pressure properties of the composition.

### ***Response to Arguments***

6. Applicants' arguments/remarks filed on 5/26/2009 with respect to claims 1 and 2 have been considered and are not persuasive.

Applicants argue that Shimomura teaches away from the use of polyol ester base oils in refrigerant lubricants by pointing to Tables 6 and 7 of Shimomura wherein complex polyol ester base oils are used as comparative examples to show inferior properties. This argument is not persuasive. When looking at the tables as a whole it is evident that the tables are comparing the mixture of hydrocarbon and ester oils as the inventive oils of Shimomura versus complex polyol ester oils used without any other base oils or simply the ester oils, wherein the mixture of hydrocarbon and ester oils has superior properties. This is not teaching away from the use of complex polyol ester oils

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but more of an indication that a mixture of hydrocarbon and ester oils is superior to polyol ester and/or polyol ester and polycarboxylic acid ester oils. Furthermore, the claims use “comprising of” language which is open-ended and therefore additional components can be added to the refrigerant composition and still meet the claim limitations.

Applicants also argue that Kawahara does not teach or suggest that polyol esters improve hydrolytic stability and that the aliphatic branched-chain carboxylic acid monoalkyl ester components are responsible for the improved hydrolytic stability. This argument is not persuasive. Kawahara clearly states in column 3, lines 16-25 that component (I) the aliphatic saturated branched-chain carboxylic monoalkyl esters achieve excellent advantages when used in COMBINATION with (II) a fatty acid polyol ester lubricating oil including improved hydrolytic stability and lowered viscosity and therefore the combination of base oils is used in the composition of Kawahara. Thus, Kawahara does provide motivation to combine the references.

Applicants further allege unexpected results and provide data in the specification that allegedly supports the applicants' position. However, the data submitted is not commensurate with the scope of the claims. For example, the inventive oils 1-6 from Table 1 of the instant specification disclose specific polyol ester base oils such as a tetraester of pentaerythritol and an equimolar mixture of 2-ethylhexanoic acid and 3,5,5-trimethylhexanoic acid which are much more specific than the base oils recited in instant claims 1-2. Table 1 also discloses very specific concentrations for the base oils in examples 1-6, which is not recited as limitations in instant claims 1-2. The same can

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be said regarding the phosphorothionate which is specifically recited as triphenyl phosphorothionate and is present in a very narrow concentration in the example oils of Table 1, the phosphorus-based additive, the glycidyl ester epoxy compound and the hydrofluorocarbon refrigerant used in the example oils of Table 7. The additives of instant claims 1 and 2 are very broad and concentrations of these additives are not recited in the instant claims. The example oils of the tables in the specification use specific additives at very narrow concentration ranges. Therefore unexpected results have not been demonstrated for the entire scope of the claims.

Finally, applicants argue since Osumi discloses a carbon dioxide refrigerant and Schnur discloses a HFC refrigerant and that since the polarities are different for the two compounds as evidenced by the *CRC Handbook of Chemistry and Physics* excerpt that applicant provided, there is no motivation to combine the two references. This argument is also not persuasive. Firstly because Osumi discloses in paragraphs 0078-0079 hydrofluorocarbon refrigerants (HFCs). These refrigerants can be used in combination with carbon dioxide refrigerant. Secondly, Schnur is not combined with Osumi to disclose a refrigerant or any other type of oil, but rather to because of Schnur's disclosure of phosphorothionates which are additives that enhance the antiwear and extreme pressure properties of the composition, therefore providing motivation to combine the two references.



***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VISHAL VASISTH whose telephone number is (571)270-3716. The examiner can normally be reached on M-R 8:30a-5:30p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571)272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ellen M McAvoy/

Primary Examiner, Art Unit 1797

VVV